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STUDIES

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NORTHERN AND ARCTIC STUDIES

COURSE SCHEDULES

As this brochure is published a considerable time before scheduled courses, participating Universities reserve the right to make whatever changes circumstances require.

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CHURCHILL NORTHERN STUDIES CENTRE

The Company, Churchill Research Centre Incorporated, was incorporated in September, 1976, under the laws of Manitoba as a non-profit body "to promote northern studies through the creation, maintenance, and operation of a northern research station". The Letters Patent provide authority for a wide range of research and study topics. Areas included are natural resources and their interaction to industrial development, transportation, construction, etc.; the ecological balance in northern Canada; preservation of wildlife and the economic viability of northern communities, etc.

The concept of a Scientific Research Station in Churchill has been the subject of discussion for at least four decades and, as far as the Community is concerned, the involvement of the Provincial Communities Economic Development Fund was required to assist in the development of a co-ordinating mechanism for economic development in that Community.

The Research Centre is unusual, at least in North America, in being neither a government undertaking nor an offshoot of a university. It was founded by local citizens to provide facilities for the use of scientists, and local participation in its activities is assured. Accommodation for the Centre has been provided in buildings formerly utilized by the Government of the Northwest Territories; there are basic laboratory facilities, residential accommodation and lecture room facilities. The Corporation's affairs are managed by a Board of Directors, a majority of whom are citizens of Churchill; for the initial establishment period and because of its co-ordinating function, the Communities Economic Development Fund is represented on the Board by its Chairman, Mr. Hugh Jones. There is representation from the Community and there is specific representation from the Community Development Corporation. Recently, the Universities of Manitoba, Winnipeg and Brandon nominated representatives to the Board of Directors in the persons of Dr. D. J. Lawless, Vice-President (Academic), Dr. John Clake, Vice-President, and Dr. Michael Blanar, Dean, Faculty of Arts, respectively, who were subsequently elected to the board.

While the Province of Manitoba expressed interest and support for this development, the consensus was that the particular location and the potential usage of the facility, would be better served by an organization independent from any one University and capable of being developed either as a consortium or by means of an even more independent corporate structure.

Following the latter direction, the Communities Economic Development Fund, on behalf of and with the assistance of the local Development Corporation, prepared a Position Paper to implement such a suggestion and as a result of the then existing fiscal restrictions established by the Province, approached various Grant Foundations across the country.

The proposal received favourable acceptance by the Donner Canadian Foundation of Toronto; a grant in the amount of $75,000. was approved, payable over two years, and a formula for disbursement was devised so that in the second year, the Foundation could be assured that matching funds from other sources to the extent of $35,000. were made available.

The Province of Manitoba approved a grant of $35,000. and the Centre was established, therefore, with initial funding of $110,000. I am pleased to report also that the Government of Canada, through the National Research Council, has provided assistance by means of a contribution, through Queen's University, of a Special Senior Fellowship Award to Dr. Fred Cooke to cover the costs of the position of Scientific Director.

Hugh Jones,
President,
Churchill Research Centre Inc.

NORTHERN & ARCTIC STUDIES

The Arctic Field Course Program is a voluntary co-ordination by a number of Canadian Universities of their various undergraduate course offerings in the Canadian North. The courses are designed to be suitable for teaching in the outdoor setting and to provide a first hand and yet reasonably inexpensive experience of the North. This program began in a small way in 1976 with a course given by Queen's and York Universities in Churchill. There were two courses offered in 1977 and five in 1978. This example of inter-university co-operation allows students from across Canada with an interest in the Arctic to participate in a field course even if his or her own University does not offer such a course. Learning with students from other Universities and with Northern residents can be a rewarding experience.

For many students, the field course will be the first contact with the Arctic, but if past experience is a guide, it will not be the last. Many students have returned to the North, either as graduate students, for summer work, or even to live. The Arctic Field Course Program often leads to a permanent commitment to the North.

The courses themselves are mainly of two week duration and are equivalent to a half course credit at most Canadian Universities. The courses are mainly in Geography and Biology, disciplines where a field component is considered an essential part of a student's understanding. The two weeks themselves are very full with field trips during the day and lectures in the evenings.

The Churchill Northern Studies Centre which co-ordinates the Arctic Field Course Program was established in 1976 with funds provided by the Donner Canadian Foundation and the Province of Manitoba. The Centre is a modest teaching and research facility in Churchill, Manitoba. Most of the field courses will be located at the Studies Centre for at least part of the time. The Centre is administered by a board of directors, comprising of representatives from the Town of Churchill, the Province of Manitoba and the Universities of Manitoba, Winnipeg and Brandon.

In addition to the Field Course Program, the Studies Centre is used by many scientists studying anything from permafrost to polar bears.

The Centre is managed by Mr. W. R. Erickson who looks after the various logistic problems which inevitably arise in the Canadian North.

Dr. Fred Cooke
Scientific Director

COURSE SCHEDULE

COURSE	1979	LOCATION	STAFF
Arctic Geomorphology	May 19 - June 3	Churchill	Dr. R. Gilbert, Queen's U. Dr. H. French, U. of Ottawa
Medical Anthropology	June 16 - June 30	Churchill	Mr. J. D. O'Neil, U. of Saskatchewan
Arctic Ornithology	June 30 - July 14	Churchill, La Perouse Bay	Dr. J. Rising, U. of Toronto Dr. A. Keast, Queen's U.
Arctic Invertebrate Biology	June 30 - July 14	Churchill	Dr. R. Green, U. of Western Ontario
People of Northern Canada	July 6 - July 27	Frobisher Bay	Dr. M. Hedley and Dr. G. Sabo (III), U. of Windsor
Arctic Environment	July 6 - July 27	Frobisher Bay	Dr. M. Sanderson and Dr. J. Jacobs, U. of Windsor
Subarctic Plant Ecology	July 14 - July 28	Churchill, La Perouse Bay	Dr. R. Staniforth, U. of Winnipeg Dr. R. Longton, U. of Manitoba
Glacial & Periglacial Geomorphology	July 21 - Aug. 11	Churchill and Rankin Inlet	Dr. J. E. FitzGibbon and Dr. J. G. McConnell, U. of Saskatchewan
High Arctic Tunda Field Course	July 23 - Aug. 14	Igloolik, North West Territories	Dr. M. C. Lewis, York U.
Field Techniques in Northern Geography	Aug. 12 - Sept. 1	Churchill and Rankin Inlet	Dr. J. E. FitzGibbon and Dr. J. G. McConnell, U. of Saskatchewan
Plant Ecology in Subarctic	Aug. 25 - Sept. 8	Churchill	Dr. K. Kershaw, McMaster U.
Field Course in Northern Climatology	Aug. 25 - Sept. 8	Churchill	Dr. W. Rouse, McMaster U.
Geography of the Subarctic	Aug. 27 - Sept. 9	Schefferville, P. Q.	Dr. J. Drake, McGill U.

COURSE INFORMATION AND OUTLINES

The information following is the most detailed available at time of printing. Additional questions specific to a particular course should be directed to the instructor concerned.

ARCTIC GEOMORPHOLOGY

DATE: May 19 to June 3, 1979

SPONSORING UNIVERSITIES:
Ottawa University
Queen's University

COURSE NUMBERS:
Ottawa University – GEG 4918
Queen's University – Geography 38-307

INSTRUCTORS:
Name: Dr. Robert Gilbert
Rank: Professor
Specialty: Arctic Marine & Lucustrine Sedimentation
Degree: Ph.D 1973 (University of British Columbia)
Address: Dept. of Geography
Queen's University
Kingston, Ontario
Telephone: (613) 547-5781

Name: Dr. Hugh M. French
Rank: Associate Professor
Specialty: Geomorphology, permafrost, Western Arctic
Degree: B.A. 1964, Ph.D 1967 (University of Southampton, England)
Address: Dept. of Geography & Regional Planning
University of Ottawa
Ottawa, Ontario
K1N 6N5
Telephone: (613) 231-2471 (Geography)
(613) 820-1196

COURSE DESCRIPTION:
The course is designed to introduce students with some basic training in physical geography to field studies in arctic and subarctic geomorphology.
(Half course credit)

PREREQUISITE:
At least one full course equivalent in physical second year geography courses or permission of instructor.

COURSE OUTLINE:

Sunday, May 20	Arrival. Orientation and general survey of the physical geography of the Churchill area. Local tour.
Monday, May 21	Glacial geomorphology. Lecures and laboratory.
Tuesday, May 22	Periglacial geomorphology. Lectures and laboratory.
Wednesday, May 23	Tour to local glacial and periglacial features.
Thursday, May 24	Periglacial geomorphology. Lectures and laboratory.
Friday, May 25	Glacial geomorphology. Lectures and laboratory.
Saturday, May 26	Tour to local glacial and periglacial features.
Sunday, May 27	Preparation for independent study. Possible aerial tour to glacial features near Churchill.
Monday, May 28 to Thursday, May 31	Each student will select one topic from each of two categories: 1. Either marine and raised marine landforms, or fluvial processes and landforms.

	2. Either periglacial processes and landforms, or terrain and surficial geology mapping. Students will work in small groups for two days on each completing the study and presenting results to the rest of the class.
Friday, June 1 and Saturday, June 2	Completing of projects and conclusion of the course.
Sunday, June 3	Departure.

PREPARATION:

Students will be asked to read extensively from:

Andrews, J. T. – *Glacial Systems*, Duxbury Press, 1975 (paper)
French, H. M. – *The Periglacial Environment*, Longman, 1976 (paper)

Both will be available at the Study Centre but students may wish to obtain their own copies to read before coming to Churchill. Additional material will be provided during the course.

PERSONAL EQUIPMENT:

Sleeping bag
Rain wear
Shoes, leather boots, rubber boots (hip waders, if available)
Warm outer clothes (temperature may be near freezing)
Field notebook
Notepaper, graph paper, writing materials and related
Camera (if available)
Hand calculator (if available)

ASSESSMENT:

Laboratory and classroom assignments will account for 40% of the grade assigned. A paper based on the group projects will account for the remaining 60% of the mark. This must be submitted to the instructors by November 1, 1979.

REGISTRATION:

Students register for either GEC 4918 (University of Ottawa) or 38-307 (Queen's University). See section in this brochure under appropriate University.

Registration is limited to 20 students.

ACCOMMODATION:

See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance.

COST:

Tuition fee:	$70.00 payable to either the University of Ottawa or Queen's University to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

MEDICAL ANTHROPOLOGY

DATE: June 16 to June 30, 1979

SPONSORING UNIVERSITY:
University of Saskatchewan

COURSE NUMBER:
Anthropology 231A

INSTRUCTOR:
Name: J. D. O'Neil
Rank: Lecturer
Specialty: Medical Anthropology
Degrees: B.A.; M.A. (University of Saskatchewan, incomplete)
Address: 317, Avenue E. N.
Saskatoon, Saskatchewan
S7L 1R9
Telephone: (306) 244-6589

CANCELLED

COURSE DESCRIPTION:
This course will examine the medical systems of practice and belief utilized by non-Western traditional societies in contending with the universal realities of disease and mental illness. The attempts to extend Western medical systems into traditional societies will also be considered.
(Half course credit)

PREREQUISITE
An introductory course in the Social Sciences.

COURSE OUTLINE:

Lecture Hours	Topic
3	1. Introductory concepts towards operational definitions of health, illness and disease, relationships among the social sciences in the study of public health systems, relationships to the concepts of culture, society within anthropology, etc.
4	2. The ecology of human disease systems in a cultural context-settlement patterns, sanitation systems, irrigation, migratory versus sendentary factors — with a special emphasis on cultural factors which influence the prevalance of disease.
3	3. A basic introduction to non-Western medical practices — shamanism, primitive surgery, herbal medicines, nutritional preventive medicines, etc., with a special emphasis on American Indian practices.
7	4. Non-Western systems of medicine — folk categories of disease and their causes (e.g. spirit loss, spirit possession, broken taboos or "sin", etc.), "medicine" as a concept that may go beyond the capacity of curing physical disease, but which may contain spiritual and secular power in its own right.
8	5. The social structure of Non-Western public health systems — shamans, soul doctors, herbal specialists, midwives, criteria of referral, kinship and cult-based networks and systems of support of the ill.

5 6. Sanity and Insanity – are there universal criteria for the identification of mental health and illness or are such concepts considered culture bound in their definition – suggestions that have been proposed for universal criteria for "psychopathology" – mental illness categories that are culture specific (e.g. Arctic hysteria, windigo, etc.) – the variants of position and possible stigmatization of those diagnosed mentally (or spiritually) ill and the techniques of handling such people.

5 7. Native medical systems in potential conflict with Western health care delivery systems in the contexts of acculturation and modernization – why Western medical systems may be totally rejected or partially accepted – a review of the literature.

4 8. The application of medical anthropology – anthropologists and their roles in the designs of community health programs, paramedic training, etc.

SPECIAL CONSIDERATIONS:

Some attention will be paid to a brief overview of anthropological concepts and terms early in the course and the latter portion of the course will be devoted to a discussion of the health care systems. It is hoped that the setting for the course will allow students to carry out field projects related to the course material.

REGISTRATION

See section in this brochure on registration under University of Saskatchewan.

ACCOMMODATION:

See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance.

COST

Tuition fee:	$72.50 payable to the University of Saskatchewan to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

ARCTIC INVERTEBRATE BIOLOGY

DATE: June 30 to July 14, 1979

SPONSORING UNIVERSITIES:
University of Windsor
University of Western Ontario

COURSE NUMBERS:
University of Windsor – Zoology 437C
University of Western Ontario –

INSTRUCTORS:
Name: Dr. Paul D. N. Hebert
Rank: Associate Professor
Specialty: Invertebrate Population Biology
Degrees: B.Sc. (Queen's University, 1969); Ph.D (Cantab, 1972)
Address: Biology Department
University of Windsor
Windsor, Ontario
N9B 3P4

Telephone: (519) 253-4232, Extension 729

Name: Dr. Roger H. Green
Rank: Professor
Specialty: Aquatic Population and Community Ecology
Degrees: B.Sc. (College of William & Mary, 1961); Ph.D (Cornell, 1965)
Address: Dept. of Zoology
University of Western Ontario
London, Ontario
Telephone: (519) 679-6534

COURSE DESCRIPTION:

An introduction to the systematics and ecology of marine, freshwater, and terrestrial invertebrate in the Churchill area. Community ecology will be stressed with particular emphasis on patterns of species diversity. (Half course credit)

COURSE OUTLINE

Saturday, June 30 and Sunday, July 1	Arrival at Churchill Northern Studies Centre
Monday, July 2 to Thursday, July 5	Over this period, a similar format will be followed each day: 1. Introduction to a particular environment. 2. Visit to the environment and collection of specimens. 3. Introduction to the systematics and biology of common organisms in the environment. 4. Identification of material collected. One day will be devoted to each of these environments: (a) intertidal (b) offshore marine and marine sediments (c) freshwater ponds and lakes, and (d) boreal forest and tundra.
Friday, July 6	Introduction to methods of quantitative analysis, e.g., sampling design, measures of species diversity, faunal similarity, etc.
Saturday, July 7	Discussion of possible research projects.

Sunday, July 8	Free day.
Monday, July 9 to Friday, July 13	Supervised research projects.
Saturday, July 14	Depart Churchill.

LOGISTICS:

You may arrive either on June 30 or July 1. Information on your mode of travel and estimated arrival time should be sent to Dr. P. Hebert before June 15. Accommodation in Churchill is at the Northern Studies Centre.

PRE-COURSE READING:

An excellent general introduction to the arctic environment and its biota is included in "The Land That Never Melts", edited by R. Wilson (softcover $4.95, published by Department of Indian and Northern Affairs, 1976). The best introduction to arctic ecology is probably "Ecological Development in Polar Regions:, by M. J. Dunbar (Prentice-Hall, 1968). There is no text available that provides a summary of invertebrate taxa present in Arctic Canada. Reference to an invertebrate biology text (e.g., "Invertebrate Zoology", by R. D. Barnes) would be useful. The following groups are likely to be encountered frequently in the Churchill area:

1. Gastropoda and Pelecypoda (Mollusca) – marine
2. Annelida – marine
3. Amphipoda (Crustacea) – marine
4. Copepoda (Crustacea) – marine and freshwater
5. Clapdocera (Crustacea) – freshwater
6. Diptera and Lepidoptera (Insecta) – terrestrial

Finally, a brief review of an introductory ecology textbook (e.g., "The Economy of Nature", by R. E. Ricklefs) might prove worthwhile.

Copies of all the above-mentioned books will be available in Churchill. In addition, identification keys for most of the abundant taxa will be brought along. The library will also include papers with a more theoretical slant.

PERSONAL EQUIPMENT:

You should have clothes to cope with temperatures ranging from 5° to 20°C. There are often strong winds off Hudson's Bay, making it essential to have a winter jacket along. A raincoat is also likely to be useful. The centre has washing machines and dryers, but several changes of clothes are essential. A sleeping bag and towels are necessary. Finally, you should also bring:

1. Strong rubber gloves (e.g., kitchen gloves) – these are useful when you are working in cool water.
2. Hip or chest waders – in many ponds, water depths are perilously close to hip wader height. Chest waders are preferable if you don't enjoy 4°C water running down your legs. Make sure to obtain waders large enough for you to wear thick woolen stocks, otherwise blisters will rapidly develop.
3. Notebook, pens and pencils.

The following items are optional:

1. camera
2. binoculars
3. insect repellent (blackflies and mosquitoes can be obnoxious)
4. calculator
5. sealable bags or glass vials (if you would like to make a collection of the organisms you identify).

ASSESSMENT:

40% of the final grade will be based on evaluations made at Churchill. The evaluation process will test both your ability to identify organisms and your knowledge of their biology. The remainder of the grade will be based on your research report. This report must be submitted no later than August 7.

REGISTRATION:

See section in this brochure on registration under University of Windsor.

ACCOMMODATION:

See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance.

COST:

Tuition fee:	$70.00 payable to the University of Windsor to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

ARCTIC ORNITHOLOGY

DATE: June 30 to July 14, 1979

SPONSORING UNIVERSITIES:
University of Toronto
Queen's University

COURSE NUMBERS:
University of Toronto –
Queen's University – Biology 307/407

INSTRUCTORS:
Name: Dr. J. A. Keast
Rank:
Specialty:
Degrees:
Address: Department of Biology
Queen's University
Kingston, Ontario
K7L 3N6
Telephone: (613) 547-3150

Name: Dr. J. Rising
Rank: Associate Professor
Specialty: Avian Systematics, Evolution, Taxonomy
Degrees: B.A.; Ph.D
Address: Department of Zoology
University of Toronto
Toronto, Ontario
M5S 1A1
Telephone: (416) 978-3482

Visiting Advisors:
Dr. F. Cooke
Queen's University

Dr. R. Jeffries
University of Toronto

COURSE DESCRIPTION:
Two weeks of field work plus written assignments. One or two areas of study to be done when specialized modules are available in May, July, August or February. Studies may include ecology of birds, fish, insects, small mammals, plants, tundra and taiga, lakes and caves.
(Half course credit)

COURSE OUTLINE:

Saturday, June 30 or Sunday, July 1	Arrival at Churchill, accommodation at Churchill Northern Studies Centre.
Sunday, July 1	General survey of Churchill area.
Monday, July 2	Aquatic habitats: (1) Marine (2) Churchill River (3) Goose Creek.
Tuesday, July 3	Bird Census Techniques 1.
Wednesday July 4	Bird Census Techniques 2.
Thursday, July 5	Boreal and tundra habitats – Twin Lake.
Friday, July 6	Habitat analysis.

Saturday, July 7	Twin otter flight to Knight's Hill Esker in morning; day on the Esker; evening hike to Queen's University Tundra Biology Station at La Perouse Bay.
Sunday, July 8	LPB salt marsh and tundra habitats.
Monday, July 9 to Thursday, July 12	Independent projects at La Perouse Bay.
Friday, July 13	Return to Churchill, oral presentation of projects.
Saturday, July 14 and Sunday, July 15	Depart Churchill.

Lectures will be given each evening of the first week on the following topics:

- Physical Feature of the Churchill Area
- History of the Canadian Arctic
- Zoogeography of the Arctic
- The Avifauna of the Churchill Area
- Breeding Systems
- Seasonal Patters of Activity
- Bird Migration.

During the second week, students will carry out small independent projects. The following are a few sample projects:

- Breeding biology of Yellow Rails
- Brood care of Willow Ptarmigan
- Nest success in Savannah Sparrows in relation to habitat
- Comparison of habitat requirements in Fringillidae
- Foraging strategies of Arctic Terns
- Food utilization by Warblers
- Nest site selection in Eiders
- Growth and development of Herring Gull chicks
- Habitat utilization in Shore Birds.

LOGISTICS:
Students should arrive on Saturday or Sunday. Please inform Mr. Bill Erickson, Churchill Northern Studies Centre. P. O. Box 610, Churchill, Manitoba R0B 0E0 of your mode of travel and estimated time of arrival.

In the second week, we will be staying at the Queen's Tundra Biology Station at La Perouse Bay, 30 miles east of Churchill. The primitive field station is beautifully located on an island in the Delta of the Mast River overlooking the La Perouse Bay Snow Goose colony. We will be doing our own cooking there. This is where the individual projects will be carried out. At the station we will probably see caribou and polar bear.

PERSONAL EQUIPMENT:
hip waders (not chest waders), make sure they fit well
rain wear
hiking boots
warm clothes
hat
warm sleeping bag
heavy socks
binoculars
compass
pocket lens
pocket knife
note book
mosquito repellent
personal belongings

Be prepared for cold (4°C) or hot (30°C) weather. The weather can be very changeable. Try to get all the equipment that you need for the second part of the course into one back pack so that you can walk into the Tundra Biology Station.

PRE-COURSE READING:

We suggest that you acquire:

1. "The Birds of the Churchill Region", Manitoba 1979 by J. R. Jehl, Jr. and B. A. Smith, which is available from the Manitoba Museum of Man and Nature, Winnipeg or Nature Canada Bookstore, 46 Elgin Street, Ottawa, Ontario.
2. A field guide for North American Birds such as: "The Birds of North America:,", by C. S. Robins, B. Bruun and H. S. Zim, 1966. "A Field Guide to the Birds", Golden Press, New York or Peterson, R. T., 1947; Houghton Mifflin Co., Boston.

In addition, it would be advisable to do some reading on Ornithology from general texts such as: "Ornithology in the Laboratory and Field", by O. S. Pettingill Jr., 1970; 4th edition. "The Life of Birds", by Brugess Publications, Minneapolis and J. C. Welty; W. B. Saunders Co., Philadelphia, 1976.

Some reading on Arctic ecology will also be helpful and should include: "Tundra Animal Communities in the Vicinity of Churchill", Ecology 22:47 - 69, by Shelford, V. E. and Twomey, A. C., 1941.

ASSESSMENT:

You will be expected to keep a journal of your findings and observations while attending the field course. This will be assessed and will count for 40% of your mark. A scientific paper based on your special project will account for the remaining 60%.

REGISTRATION:

For students from Brock, Carlton, Queen's, Waterloo, Western and York, register at your own university in the Ontario Universities program in Field Biology. University of Toronto students should contact Dr. J. Rising, Department of Zoology at University of Toronto. For students from other Canadian Universities it is necessary to enrol as a visiting student at Queen's University. See section in this brochure on registration.

ACCOMMODATION:

See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance. Arrangements for stay at La Perouse Bay will be made by the Churchill Northern Studies Centre.

COST

Tuition fee:	$70.00 payable to the University of Toronto or Queen's University to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

PEOPLE OF NORTHERN CANADA

DATE: July 6 to July 27, 1979

SPONSORING UNIVERSITY:
University of Windsor

COURSE NUMBER:
Anthropology 230

INSTRUCTORS:

Name: Dr. Max J. Hedley
Rank: Assistant Professor
Specialty: Social Anthropology, Development, Canadian Studies
Degrees: B.A. (York, England); M.A., Ph.D (Alberta)
Address: Department of Sociology and Anthropology
University of Windsor
Windsor, Ontario
N9B 3P4
Telephone: (519) 253-4232, extension 584
(519) 252-6895

Name: Dr. George Sabo III
Rank: Assistant Professor
Specialty: Arctic Prehistory, Ethnography
Degrees: B.A.; M.A. in Anthropology; Ph.D (due summer 1979)
(Michigan State University)
Address: Department of Anthropology
Michigan State University
East Lansing, Michigan
U.S.A. 48824
Telephone: (517) 353-6724 – Anthropology office
(517) 355-3496 – Museum office

COURSE DESCRIPTION:
A study of the origins and development of Inuit culture and its adaptation to the environment in the Canadian Arctic. In addition, the course will examine the origins, causes, and proposed solutions to the contemporary problems confronting the Native peoples of Northern Canada. (Full course credit)

COURSE OUTLINE:

Thursday, July 5 and Friday, July 6	Arrival at Ukkivik residence, Frobisher Bay.
Saturday, July 7 to Saturday, July 14	Lectures: Introduction to social anthropology and archeology, arctic ecology and adaptations, origins and development of eskimo culture and neoeskimo whale hunters. Field Trips: Techniques in archeology and examination of Thule and Dorset sites.
Sunday, July 15	Free day.
Monday, July 16 to Thursday, July 19	Lectures: The influence of Euro-Canadian institutions on Inuit cultures. Field Trips: Inuit sites.
Friday, July 20 to Sunday, July 22	Field trip to a Northern settlement.

Monday, July 23 to Thursday, July 26	Lectures:	Examination of the effects of mineral exploration and extraction, land claims, and other contemporary social issues.
	Group/Individual research projects.	
Friday, July 27	Depart Frobisher Bay.	

Detailed program of the course will be sent to interested students upon request.

LOGISTICS:
Students should arrive Thursday or Friday, July 5 or 6. Students must arrange their own travel to and from Frobisher. Nordair has daily flights from Montreal. Students should notify Dr. Hedley of arrival time. Transportation to Ukkivik residence will be provided.

PREPARATION:
Recommended reading lists will be provided to the student when enrollment in the course is finalized.

PERSONAL EQUIPMENT:
The average maximum temperature in July in Frobisher is about 12°C. It is often cloudy and rainy. Students are advised to bring the following:

- rain wear
- hiking boots (waterproof)
- warm clothes
- hat
- heavy socks
- mosquito repellent
- personal belongings
- note book
- hand calculator (if possible)

Persons wishing to take part in optional overnight hiking trips should bring sleeping bags and other backpacking equipment. A limited number of light tents are available.

ASSESSMENT:
The student's mark will be assigned on the basis of field exercises and research projects. The latter must be submitted to Dr. Hedley by August 31, 1979.

REGISTRATION:
See section in this brochure on registration under University of Windsor.

ACCOMMODATION:
Classroom living and dining facilities for course participants will be provided in the modern Ukkivik residence about one mile from the town of Frobisher Bay (population about 2,500, administrative centre of the Eastern Arctic). Telephone at Ukkivik: (819) 979-5271.

All arrangements will be made for students upon registration.

NOTE: Students from the Territories seeking financial assistance should apply to Ralph Brown, Regional Superintendent of Education.

COST:

Tuition fee:	$145.00 payable to the University of Windsor to accompany registration.
Accommodation:	$500.00 payable to the University of Windsor; includes accommodation, meals and local course related travel. Bookings will be made by the University of Windsor for students upon receipt of fee payment of $145.00 by money order or certified cheque. This will be considered as a deposit and is **not** refundable.

ARCTIC ENVIRONMENT

DATE: July 6 to July 27, 1979

SPONSORING UNIVERSITY:
University of Windsor

COURSE NUMBER:
Geography 219

INSTRUCTORS:
Name: Dr. Marie Sanderson
Rank: Professor
Specialty:
Degrees: Ph.D (University of Michigan)
Address: Department of Geography
University of Windsor
Windsor, Ontario
N9B 3P4
Telephone: (519) 253-4232, extension 415 or 416

Name: Dr. John Jacobs
Rank: Associate Professor
Specialty:
Degrees: Ph.D (University of Colorado)
Address: Department of Geography
University of Windsor
Windsor, Ontario
N9B 3P4
Telephone: (519) 253-4232, extension 808 or 446

Name: Dr. Paul Hebert
Rank: Assistant Professor
Specialty: Invertebrate Population Biology
Degrees: B.Sc. (Queen's University, 1969); Ph.D (Cantab, 1972)
Address: Biology Department
University of Windsor
Windsor, Ontario
N9B 3P4
Telephone: (519) 253-4232, extension 729

COURSE DESCRIPTION

A summer course offered in the Canadian Arctic, with Southern Canadians and native people interacting in field and class room. The arctic environment, land, sea, climate and ecology will be studied.
(Full course credit)

COURSE OUTLINE:

Thursday, July 5 to Friday, July 6	Arrival at Ukkivik residence, Frobisher Bay
Saturday, July 7 to Saturday, July 14	Lectures and introduction to field techniques in climatology, meteorology, geomorphology
Sunday, July 15	Free day.
Monday, July 16 to Thursday, July 19	Lectures and introduction in field techniques in biology and hydrology.
Friday, July 20 to Sunday, July 22	Field trip by charter aircraft to Pangnirtung and Auyuittuq National Park.
Monday, July 23 to Thursday, July 26	Group research projects.
Friday, July 27	Depart Frobisher Bay.

Detailed program of the course will be sent to interested students upon request.

LOGISTICS:

Students should arrive Thursday or Friday, July 5 or 6. Students must arrange their own travel to and from Frobisher. Nordair has daily flights from Montreal. Students should notify Dr. Sanderson of arrival time. Transportation to Ukkivik residence will be provided.

Classroom living and dining facilities for course participants will be provided in the modern Ukkivik residence about one mile from the town of Frobisher Bay (population about 2500, administrative centre of the Eastern Arctic).

PREPARATION:

Recommended reading lists will be provided to the student when enrollment in the course is finalized.

PERSONAL EQUIPMENT:

The average maximum temperature in July in Frobisher is about 12°C. It is often cloudy and rainy. Students are advised to bring the following:

rain wear
hiking boots (waterproof)
warm clothes
hat
heavy socks
mosquito repellent
personal belongings
note book
hand calculator (if possible

Persons wishing to take part in optional overnight hiking trips should bring sleeping bags and other backpacking equipment. A limited number of light tents are available.

ASSESSMENT:

The student's mark will be assigned on the basis of the field exercises completed during the 3 weeks in Frobisher, and the written scientific report of the group project. The latter must be submitted to Dr. Sanderson by August 31, 1979.

REGISTRATION:

See section in this brochure on registration under University of Windsor.

ACCOMMODATION:

Classroom living and dining facilities for course participants will be provided in the modern Ukkivik residence about one mile from the town of Frobisher Bay (population about 2500, administrative centre of the Eastern Arctic). Telephone at Ukkivik: (819) 979-5271.

All arrangements will be made for students upon registration.

NOTE: Students from the Territories seeking financial assistance should apply to Ralph Brown, Regional Superintendent of Education.

COST:

Tuition fee: $145.00 payable to the University of Windsor to accompany registration.

Accommodation: $500.00 payable to the University of Windsor; includes accommodation, meals and local course related travel. Bookings will be made by the University of Windsor for students upon receipt of fee payment of $145.00 by money order or certified cheque. This will be considered as a deposit and is **not** refundable.

SUB ARCTIC PLANT ECOLOGY

DATE: July 14 to July 28, 1979

SPONSORING UNIVERSITIES:

University of Winnipeg
University of Manitoba

COURSE NUMBERS:

University of Winnipeg
Sub-arctic Plant Ecology 05-4451-5

University of Manitoba
Special Topics in Field Biology 1.480

COURSE DESCRIPTION:

University of Winnipeg: Sub-arctic Plant Ecology 05-4451-5
This course will survey the diversity of flora and vegetation in the Churchill region, with special emphasis on the structure of sub-arctic communities such as tundra, northern forests, salt marshes and other coastal vegetation. Morphological, physiological and phenological adaptations of plants to prominent environmental factors will be considered. (Half course credit)

University of Manitoba: Special Topics in Field Biology 1.480
Lectures, field studies and research projects on a selected topic. Course content to vary from year to year depending on instructor. Usually offered during the summer months. (Half course credit)

PREREQUISITE:
At discretion of instructor.

COURSE OUTLINE:

Saturday, July 14 and Sunday, July 15	Arrival at Churchill; orientation to Churchill; discussion on organization of course; setting up of microclimatic recording station.
Monday, July 16 to Wednesday, July 18	Lectures on historical development of flora and vegetation in regions near forest/tundra boundary in central Canada. Field studies of coastal vegetation including coastal rocks at Cape Merry, sand dune systems near Fort Churchill, boat trip to Fort Prince of Wales. These studies will utilize quantitative methods to demonstrate changes in plant community structure and composition in relation to succession and variation in coastal environments.
Thursday, July 19 to Saturday, July 21	Lectures on the characteristics and variability of the boreal forest. Field studies near Churchill and at Twin Lakes of bog forest and lichen woodland. Emphasis on the influence of permafrost, fire and other major environmental influences on the establishment and survival of forest communities.
Sunday, July 22	Salt marsh vegetation at Goose Creek. Prisere leading from saltmarsh to forest.
Monday, July 23 to Wednesday, July 25	La Perouse Bay near Cape Churchill. Geomorphological features associated with isostatic uplift and their influence on the distribution of wet and dry tundra communities. Lectures on and investigation of adaptations of tundra plants.

Thursday, July 26 and Friday, July 27	Individual projects near Churchill.
Saturday, July 28	Depart Churchill.

LOGISTICS:

Students should arrive in Churchill on Saturday or Sunday, July 14 or 15, by rail or air. Please inform Dr. R. E. Longton, Department of Botany, University of Manitoba, Winnipeg, Manitoba R3T 2N2, of your travel arrangements and estimated time of arrival in Churchill. Accommodation is at the Churchill Northern Studies Centre, and students will be met at the airport or railway station.

PERSONAL EQUIPMENT:

You should be prepared to work outside in hot or cold, wet or dry weather. Sleeping bag, towels, personal belongings and insect repellent should be brought.

Your clothing and personal belongings should include:

strong, waterproof footwear
sneakers
two shirts
wind breaker or parka
gloves (light)
socks and underwear
two pairs field pants
warm sweater
rain wear
sleeping bag

Other Equipment:
3-ring binder and supply of 8½ x 11" paper
graph paper
field notebook
pens and pencils
hand lens (x10 or x20)

COURSE TEXT:

Pruit, W. O., 1978, *Boreal Ecology.* Studies in Biology 91. (Available from the Bookstore, University of Manitoba, Winnipeg, Manitoba at $5.30 plus postage.)

PRE-COURSE READING:

"Arctic and Alpine Environments", by W. D. Billings, 1974. Arctic and alpine vegetation: plant adaptations to cold summer climates. In J. D. Ives and R. G. Barry (eds.). Methuen, London, pp. 403-443.

"Can. J. Bot.", by K. A. Kershaw, 1977. Studies on lichen woodland. An examination of some aspects of the northern boreal lichen woodland in Canada. 55: 393-410.

"J. Ecol.", by N. Polunin, 1951. The real arctic. Suggestions for its delimitation, subdivision and classification. 39: 308-315.

"Arctic", by J. C. Ritchie, 1960. The vegetation of northern Manitoba. Establishing the major zonation. 13: 210-229.

"Churchill: Canada's Northern Gateway", by N. Shipley, 1974. Burns and MacEachern, Toronto.

Floristic Reference Works:

"National Museum of Canada Bulletin", H. J. Scoggan, 1957. Flora of Manitoba. 140. Ottawa.

"The Native Flora of Churchill, Manitoba", H. J. Scoggan, 1959. National Museum of Canada, Ottawa.

Other Useful Background and Reference Material:

"Arctic and Alpine Environments", R. G. Barry and F. K. Hare. Arctic climate. In J. D. Ives and R. G. Barry (eds.). Methuen, London, pp. 17-54.

"Biol. Rev.", by W. D. Billings and H. A. Mooney, 1968. The ecology of arctic and alpine plants. 43: 481-529.

"Ann. Rev. Ecology and Systematics", L. C. Bliss, 1971. Arctic and alpine plant life cycles. 2: 405-438.

"Ann. Rev. Ecology and Systematics", L. C. Bliss, 1973. Arctic tundra ecosystems. 4: 359-399.

"Quantitative and Dynamic Plant Ecology:, K. A. Kershaw, 1973. 2nd edition, Arnold, London.

"Arctic and Alpine Environments", J. A. Larsen, 1974. Ecology of the northern continental forest border. In J. D. Ives and R. G. Barry (eds.). Methuen, London.

"Arctic and Alpine Environments", A. Love and D. Love, 1974. Origin and evolution of the arctic and alpine floras. In J. D. Ives and R. G. Barry (eds.). Methuen, London.

"Ecology:", J. C. Ritchie, 1957. The vegetation of northern Manitoba. A presire on the Hudson's Bay Lowlands. 38: 429-435.

"Forest Regions in Canada", J. S. Rowe, 1959. Canada Department of Northern Affairs and Natural Resources, Forestry Branch, Bulletin 123, Ottawa.

"Quarternary Research", J. S. Rowe and G. Scotter, 1973. Fire in the boreal forest. 3: 444-464.

"Arctic Adaptations in Plants", D. B. O. Savile, 1972. Canada Department of Agriculture Monograph 6. Ottawa.

"Manitoba Nature", C. T. Shay, 1976. The vegetation of Manitoba. 17(2), 14-36.

"Ecology of the Sub-arctic Region", U.N.E.S.C.O., 1970. Proceedings of the Helsinki Symposium, Paris.

REGISTRATION:

This course is offered under the auspices of Inter-Universities North, co-sponsored by University of Winnipeg and the University of Manitoba.

See section in this brochure on registration under University of Manitoba or University of Winnipeg.

ACCOMMODATION:

See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance. Arrangements to stay at La Perouse Bay will be made by the Churchill Northern Studies Centre.

COST:

Tuition fee:	$54.00 payable to Brandon University to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

GLACIAL AND PERIGLACIAL GEOMORPHOLOGY

DATE: July 21 to August 11, 1979

SPONSORING UNIVERSITY:
University of Saskatchewan

COURSE NUMBER:
University of Saskatchewan
Geography 236 (P)

INSTRUCTORS:
Name: Dr. John E. FitzGibbon
Rank: Assistant Professor
Specialty: Geomorphology and Hydrology
Degrees: B.A. (McMaster); M. Sc. (University College of Wales) (Aberystwyth); Ph.D (McGill)
Address: Department of Geography
University of Saskatchewan
Saskatoon, Saskatchewan
R7N 0W0
Telephone: (306) 343-2252

Name: Dr. John G. McConnell
Rank: Associate Professor
Specialty: Historical and Regional Geography. Canadian Arctic
Degrees: B.A.; M.A.
Address: Department of Geography
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0
Telephone: (306) 343-4162

COURSE DESCRIPTION:

The course will consist of a series of lectures, field demonstrations, and field projects dealing with the glacial and periglacial geomorphology of the Rankin Inlet area. The lectures will deal with general theories and problems while the filed demonstrations and group projects will serve as specific applications of this material. Seminar type discussions will be held to discuss the results of the field work. Extensive use of air photos will be made in examining phenomena not available for study in the field area. (Half course credit)

COURSE OUTLINE:

Friday, July 20 and Saturday, July 21	Arrival at Churchill Northern Studies Centre.
Sunday, July 22	Lectures begin at 9:00 a.m. – Glaciology Field reconnaissance at 1:30 p.m. – General geomorphic history of Churchill area.
Monday, July 23	Lecture: a.m. – Glacial Erosion : p.m. – Field Study of Features of Erosion
Tuesday, July 24	Lecture: a.m. – Glacial Deposition (tills) : p.m. – Field Work – Organic Terrain
Wednesday, July 25	Lecture: a.m. – Fluvioglacial Process and Forms : p.m. – Field Work
Thursday, July 26	Lecture: a.m. – Glacio Lacustrine – Marine Forms and Processes : p.m. – Raised Beaches and Shoreline Features
Friday, July 27	a.m. – p.m. – Trip to Rankin Inlet and settling in

Saturday July 28	Lecture: a.m. – Glacial Climate and Climatic Change, and Periglacial Climate
	: p.m. – Examination of Moraines and Till
Sunday, July 29	Lecture: a.m. – Permafrost – Gradient
	: p.m. – Examination of Permafrost Table and Actual Layer Structure
Monday, July 30	Lecture: a.m. – Patterned Ground
	p.m. – Examination of Patterned Ground Features
Tuesday, July 31	Lecture: a.m. – Periglacial Mass Movement
	: p.m. – Examination of Solifluction Features
Wednesday, August 1	Lecture: a.m. – Periglacial Fluvial Processes
	: p.m. – Project Organization
Thursday, August 2	Lecture: a.m. – Periglacial Coastal Processes
	: p.m. – Proposal for Projects Complete
Friday, August 3	Lecture: a.m. – Terrain Analysis
	: p.m. – Discussion of Proposals
Saturday, August 4	Field trip to Barren Lands
Sunday, August 5	Field trip to Barren Lands
Monday, August 6	Project Field Work
Tuesday, August 7	Project Field Work
Wednesday, August 8	Project Field Work
Thursday, August 9	Project Analysis
Friday, August 10	Project Write-up and Presentation
Saturday, August 11	Depart from Rankin Inlet

COURSE TEXTS:

Glacial Geomorphology, Embleton & King
Periglacial Geomorphology, Embleton & King

Other Readings:

Glaciers and Landscapes, Sugden & John
Periglacial Geomorphology, Washburn

Additional reading material will be supplied in handout form.

PERSONAL EQUIPMENT:

- warm coat – parka
- hiking boots
- heavy socks
- compass
- back pack (large enough to hold personal equipment for two or three days
- rain wear
- hat
- warm sleeping bag
- pocket knife
- field note book with removable pages
- insect repellent
- personal belongings

REGISTRATION:
See section in this brochure on registration with University of Saskatchewan.

ACCOMMODATION:
See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance. Arrangements to stay at Rankin Inlet will be made by the Churchill Northern Studies Centre personnel upon receipt of application form (in this brochure) and a deposit of $50.00.

COST:

Tuition fee: $72.50 payable to the University of Saskatchewan to accompany registration.

Accommodation: $425.00 payable to Churchill Northern Studies Centre to cover accommodation, meals at both Churchill and Rankin Inlet, local course related transportation, and return travel from Churchill to Rankin Inlet. Application form is enclosed.

HIGH ARCTIC TUNDRA FIELD COURSE

DATE: July 23 to August 14, 1979

SPONSORING UNIVERSITY:
York University

Students should direct all enquiries regarding this course to:

Dr. M. C. Lewis
Faculty of Science
York University
Downsview, Ontario
M3J 1P3
Telephone: (416) 667-3748

COST:

Tuition fee: $70.00

Accommodation: $850.00

FIELD TECHNIQUES IN NORTHERN GEOGRAPHY

DATE: August 12 to September 1, 1979

SPONSORING UNIVERSITY:
University of Saskatchewan

COURSE NUMBER:
University of Saskatchewan
Geography 310 (C)

INSTRUCTORS:
Name: Dr. John G. McConnell
Rank: Associate Professor
Specialty: Historical and Regional Geography. Canadian Arctic
Degrees: B.A.; M.A.
Address: Department of Geography
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0
Telephone: (306) 343-4162

Name: Dr. John E. FitzGibbon
Rank: Assistant Professor
Specialty: Geomorphology and Hydrology
Degrees: B.A. (McMaster); M.Sc. (University College of Wales) (Aberystwyth); Ph.D (McGill)
Address: Department of Geography
University of Saskatchewan
Saskatoon, Saskatchewan
R7N 0W0
Telephone: (306) 343-2252

COURSE DESCRIPTION:
Methodology and techniques in fieldwork and research which applies to the natural and human environments of the arctic. (Half course credit)

COURSE OUTLINE:

Sunday, August 12	a.m. – p.m.:	Arrival and settling in Churchill Northern Studies Centre
Monday, August 13	a.m.	: Outline of field problems and techniques
	p.m.	: Reconnaissance of Churchill area
Tuesday, August 14	a.m.	: Introduction to physical geography – Churchill
	p.m.	: Field identification of physical features
Wednesday, August 15	a.m.	: History and development of the Churchill region
	p.m.	: Field investigation of historic impact on region
Thursday, August 16	a.m.	: Specific field problems in the region
	p.m.	: Selection and preparation of field projects
Friday, August 17	a.m. – p.m.:	Field testing and evaluation of the project outlines

Also, during this week, there will be evening lectures on special local problems.

Saturday, August 18	a.m. – p.m.:	Journey to Rankin Inlet, settling in A.R.T.C. and reconnaissance of Rankin Inlet settlement
Sunday, August 19	a.m.	: Arctic vegetation
	p.m.	: Field collection of plants and identification of plant communities

Monday, August 20	a.m.	: Introduction to basic survey methods
	p.m.	: Field surveying
Tuesday, August 21	a.m.	: Outline of regional geomorphology
	p.m.	: Outline of regional climate and microclimate
Wednesday, August 22		: Field trip to Meliadine Esker and application of field techniques
Thursday, August 23		: Field trip to Meliadine Esker and application of field techniques
Friday, August 24	a.m.	: Human geography of Rankin area
	p.m.	: Field investigation of archaeological sites
Saturday, August 25		: Project formulation
Sunday, August 26		: Project formulation
Monday, August 27	a.m. – p.m.:	Lectures on specific field problems and techniques. Work on field projects
Tuesday, August 28	a.m. – p.m.:	Lectures on specific field problems and techniques. Work on field projects
Friday, August 29	a.m. – p.m.:	Lectures on specific field problems and techniques. Work on field projects.
Saturday, August 30		: Project completion and examination
Sunday, September 1		: Depart from Rankin Inlet

TEXTS: *Science, History and Hudson Bay,* Vol. 1 and 2, Beals and Shenstone
Physiography of Arctic Canada, J. B. Bird

Additional reading material will be available at Churchill and Rankin Inlet.

PERSONAL EQUIPMENT:

warm coat — parka
hiking boots
heavy socks
compass
back pack (large enough to hold personal equipment for two or three days)
personal belongings
rain wear
hat
warm sleeping bag
pocket knife
field note book
pencils
insect repellent

REGISTRATION:
See section in this brochure on registration under University of Saskatchewan.

ACCOMMODATION:
See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance. Arrangements to stay at Rankin Inlet will be made by the Churchill Northern Studies Centre personnel upon receipt of application form (in this brochure) and a deposit of $50.00.

COST:

Tuition fee: $72.50 payable to the University of Saskatchewan to accompany registration.

Accommodation: $425.00 payable to Churchill Northern Studies Centre to cover accommodation, meals at both Churchill and Rankin Inlet, local course related transportation, and return travel from Churchill to Rankin Inlet. Application form is enclosed.

FIELD COURSE IN NORTHERN CLIMATOLOGY

DATE: August 25 to September 8, 1979

SPONSORING UNIVERSITY:
McMaster University

COURSE NUMBER:
McMaster University 4E3

INSTRUCTOR:
Name: Dr. Wayne R. Rouse
Rank: Professor
Specialty: Climatology
Degrees: M. Sc. and Ph.D (McGill University)
Address: Department of Geography
McMaster University
Hamilton, Ontario
L8S 4K1
Telephone: (416) 525-9140, extension 4334

COURSE DESCRIPTION:
Methods of measurement and analysis in climatology in the Northern environment. Emphasis on the radiation and energy balance and its interaction with the soil moisture and thermal regimes. Held at Churchill, Manitoba, in the two weeks preceding fall registration. A report is to be submitted before the end of first term. (Half course credit)

PREREQUISITE:
Geography 2F3 or two years in a Science programme including Geography 1A6 or its equivalent.

COURSE OUTLINE:

Saturday, August 25 to Sunday, August 26	Arrival at Churchill Northern Studies Centre.
Monday, August 27	General survey of Churchill area and climatology research sites.
Tuesday, August 28 to Thursday, August 30	Introduction to field techniques in measurement of solar and terrestrial radiation, temperature and humidity, soil temperature and heat flow and soil moisture (by groups).
Friday, September 1	Group research projects.
Saturday, September 2	Free day. Trip to Fort Prince of Wales. Cost: $10.00
Sunday, September 3 to Friday, September 7	Group research projects.
Saturday, September 8	Depart Churchill

Timing the field measurement program will depend on weather conditions. Lectures will be given each evening of the first week.

Week 1
Lectures:
Introduction to the Program and Radiation measurement
Temperature and Humidity Measurement
Soil Moisture Measurement
Thermal Behavior in Frozen Soil
The Energy Budget

Week 2

Seminars on Group Research Projects.

Group Research Projects:
For the second week, students will divide into small groups to formulate and carry out a set of projects. An example of types of projects are as follows:

Temperature patterns in different soil types
Component radiation fluxes in different terrain units
Air temperature and humidity across the Churchill Peninsula
Interaction of vegetation and microclimate
Energy balance at a tundra site
Surface albedos.

LOGISTICS:

Students should arrive on Saturday or Sunday. Charter flights from Toronto will be arranged if there is sufficient demand. If you arrange your own transportation please give information on your mode of travel and estimated time to Dr. W. R. Rouse, Geography Department, McMaster University, Hamilton, Ontario, L8S 4K1.

PREPARATION:

Recommended reading lists and reading handouts will be provided once your enrollment in the course is finalized.

PERSONAL EQUIPMENT:

rain wear
hiking boots (waterproof)
warm clothes
hat
sleeping bag
bathing suit
mosquito repellent
personal belongings
note book
hand calculator with log and trig functions (if available)

ASSESSMENT:

Each student will be expected to keep a journal of findings and observations while attending the field course. This will be assessed and will account for 15% of the final mark. A further 15% will be assessed on the group seminar in the second week. A scientific paper based on the group projects will account for the remaining 70% of the mark. This must be submitted to Dr. Rouse by November 30, 1979.

REGISTRATION:

See section in this brochure on registration under McMaster University.

ACCOMMODATION:

See section on accommodation at Churchill Northern Studies Centre in this brochure. Charter flights from Toronto will be arranged if there is sufficient demand.

COST:

Tuition fee:	$75.00 payable to McMaster University to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

PLANT ECOLOGY IN SUB-ARCTIC

DATE: August 25 to September 8, 1979

SPONSORING UNIVERSITY:
McMaster University

COURSE NUMBER:
McMaster University
Biology 4J3

INSTRUCTOR:
Name: Dr. Kenneth A. Kershaw
Rank: Professor
Specialty: Plant Ecology
Degrees: B.Sc.; Ph.D; D.Sc.
Address: Department of Biology
McMaster University
Hamilton, Ontario
L8S 4K1
Telephone: (416) 525-9140, extension 4265

COURSE DESCRIPTION:

A fourteen day field course on the major vegetation types of the low arctic and their relationship to geomorphology and microclimate. The floristics and general ecology of the major plant communities will be examined during the first few days of the course prior to the introduction of field sampling methods, measures and simple methods of data analysis. The remainder of the course will be devoted to a project which will involve an in-depth examination of some aspect of the ecology of a vegetation sampling, primary data analysis and a simple assessment of correlated environmental parameters. Students will work in small field groups on their selected project, but subsequently will work up the data independently.

Data analysis and the project write up will be finalized during September and October. The final report should be submitted before November 30, 1979 when it will be assessed and will count in the completion of the total mark. (Half course credit)

COURSE OUTLINE:

Saturday, August 25 and Sunday, August 26	Arrival at Churchill Northern Studies Centre.
Monday, August 27 to Friday, August 31	Introduction to the climate, geomorphology and general ecology of the Churchill area. Sampling measures and sampling methods.
Saturday, September 1 to Thursday, September 6	Group projects.
Friday, September 7	Group project seminars.
Saturday, September 8	Depart Churchill

During the first week, there will be a limited number of formal lectures on sampling methods and measures, pattern analysis, and sample ordination methods. Additional information seminars will be used, where necessary, to amplify field studies.

LOGISTICS:

Students should arrive in Churchill on Saturday or Sunday, August 25 or 26 by rail or air.

PERSONAL EQUIPMENT:
The climate at Churchill can be fairly rigorous and, accordingly, you should be prepared for 0°C to 25°C weather. Rain will not seriously affect field work and you should ensure adequate foot gear and rain wear. (It is sometimes preferable to wear sneakers rather than heavy boots in wet areas) Sleeping bag, towels plus standard personal belongings and insect repellent should complete your equipment.

Please bring hand lense, note books, pencils, etc. Graph paper is often used.

TEXT:

Quantitative and Dynamic Plant Ecology,
K. A. Kershaw, Edward Arnold, London

ASSESSMENT:
You will be expected to present a full report including a discussion of the general environment and ecology of the Churchill area together with a more detailed write up and analysis of the group project you were involved in. It is expected that the project write up in particular will involve some library research and possibly additional data analysis during September and November. The final report should be submitted before November 30 when it will be assessed and will count for the total course mark.

REGISTRATION:
See section in this brochure on registration under McMaster University.

ACCOMMODATION:
See section on accommodation at Churchill Northern Studies Centre in this brochure. Students should arrange their own return transportation by air or rail to Churchill. Considerable reduction in air fare may be had by booking in advance. Charter flights from Toronto will be arranged if there is sufficient demand.

COST:

Tuition fee:	$75.00 payable to McMaster University to accompany registration.
Accommodation:	$250.00 payable to Churchill Northern Studies Centre to cover accommodation, meals, and local course related transportation. Application form is enclosed.

THE GEOGRAPHY OF THE SUB-ARCTIC

DATE: August 27 to September 9, 1979

SPONSORING UNIVERSITY:
McGill University

COURSE NUMBER:
McGill University
Geography 183-499G

INSTRUCTOR:
Name: Dr. John Drake
Rank: Professor
Specialty: Geography
Degrees:
Address: Department of Geography
McGill University
805 Sherbrooke Street West
Montreal, P. Q.
H3A 2K6
Telephone: (514) 392-8083

COURSE DESCRIPTION:
The course is an introduction to the sub-arctic environment, and emphasizes the applications of field methods to the description, measurement and explanation of phenomena and processes within the realms of microclimatology, hydrology, biogeography, geomorphology, permafrost studies, the characteristics of Northern resource towns and the socio-economic situation of Northern native peoples. Students will undertake individual and group research projects. (Half course credit)

PREREQUISITE:
Courses 183-203D or 183-325A or 183-301A or equivalent AND permission of instructor.

COURSE OUTLINE:
Environmental science is a synthesis of different disciplinary approaches, and the course is designed to demonstrate this and to provide instruction in field work. The term 'field work' is intended to include both field methods (techniques and interpretation of field data) and the field interpretation of past and present phenomena and processes. The sub-arctic has been chosen because:

1. It is an increasingly important area of Canadian development and expertise in this environment will be of increasing value;
2. Several members of staff are familiar with and are working in the sub-arctic;
3. The facilities of the McGill Sub-Arctic Research Station are available – these facilities include space for lectures, seminars, individual laboratory work, field equipment, a well-stocked library and living accommodation;
4. The sub-arctic is an unfamiliar environment to most students, and its study will enhance the student's ability to extrapolate knowledge to new situations.

The course is offered to final year students who will have completed several substantive courses before the field course, and it will introduce any student interested in graduate work to the sub-arctic.

Schefferville is located some 350 miles north of Sept-Iles, and is the town developed since 1954 in response to the discovery of large deposits of iron ore in the vicinity. The area lies within sub-arctic Quebec, and is one where discontinuous permafrost is present.

Since 1954, the McGill Station has been a centre for staff and graduate student research into topics such as permafrost behavior and the prediction of permafrost occurrence; the geomorphology of the sub-arctic and frozen ground phenomena; the micro-climate of sub-arctic vegetation stands and lakes; sub-arctic pedogensis; the ecology of sub-arctic species; snowmelt; the hydrology of sub-arctic watersheds; and the social and cultural characteristics of the town and the native peoples of the area.

REGISTRATION:

Pre-registration is required in April 1979. At that time a deposit will be required. During the summer, background reading material will be mailed to students. This material must be read prior to the beginning of the course.

Enrolment is limited, and those students will be chosen who will receive the greatest benefit from the course. If too few students enrol the course will be cancelled.

Please direct all enquiries to Dr. John Drake.

ACCOMMODATION:

One day will be spent flying to Sept-Iles and examining the characteristics of that area, the next day travelling to Schefferville by rail, ten days in Schefferville and one day returning. Some mornings and evenings at Schefferville will be spent in lectures or seminars. Other time will be spent in the field, either on excursions or group or individual projects. Each student will be required to prepare written work, including a report on the individual project by December 1, 1979.

COST:

Tuition fee:	$57.00 payable to McGill University to accompany registration.
Accommodation:	$450.00 payable to McGill University to cover return transportation from Montreal and full board and lodging at Schefferville.

REGISTRATION PROCEDURES

Due to the extent of the programme, registration procedures vary depending upon the course and the sponsoring university. The student is advised to follow the specific procedure of the sponsoring university of the course for which registration is intended.

When a course is co-sponsored by two universities, the student may register with either university. If the student is not presently registered with the sponsoring university, a letter of permission from the student's home university must accompany registration.

Attention should be paid to documentation required, tuition fees and deadline dates. All courses have limited enrolment.

For additional information, contact the registrar of the sponsoring university, the instructor, or Shirley Lyon, Director, Inter-Universities North, 59 Elizabeth Road, Thompson, Manitoba, R8N 1X4.

McMASTER UNIVERSITY

COURSES SPONSORED:	Climates in High Altitudes Plant Ecology in Sub-Arctic

Admission and Registration

McMaster Students: Registrations for these courses must be included on the 1978/79 registration form for approval by the appropriate Dean of Studies. Any questions should be directed to:

Mr. F. J. Walker
Assistant Registrar
McMaster University
1280 Main Street West
Hamilton, Ontario
L8S 4K1
Telephone: (416) 525-9140, extension 4457

Other Students: Students from other institutions must apply to:

Mr. H. D. Bridle
Assistant Registrar
(Liaison and Admissions)
Gilmour Hall, Room 110
McMaster University
Hamilton, Ontario
L8S 4L8

and enclose a Letter of Permission from their home institution and tuition fee of $75.00.

QUEEN'S UNIVERSITY

COURSE CO-SPONSORED:	Arctic Geomorphology (Geography 38-307) Arctic Ornithology (Biology 12-307)

Admission and Registration

Arctic Geomorphology: Applicants are requested to return the completed application form and registration materials which they have received, directly to the:

Admissions Officer
Part-Time Studies
Faculty of Arts and Science
Queen's University
Kingston, Ontario
K7L 2N6

before April 15, 1979.

Documents which must be submitted in support of the application are outlined on the direction sheet. Most applicants will be clasified as visiting students and will be expected to provide a

Letter of Permission and Official Transcript from their home university. All students registered in **Geomorphology** will receive a statement of standing which may be presented to their home university for transfer of credit to their own degree programs.

Arctic Ornithology: Applicants are requested to return the completed application form and registration materials which they have received, directly to the:

Admissions Officer
Part-Time Studies
Faculty of Arts and Science
Queen's University
Kingston, Ontario
K7L 2N6

before June 1, 1979

Documents which must be submitted in support of the application are outlined on the direction sheet. Most applicants will be classified as visiting students and will be expected to provide a Letter of Permission and Official Transcript from their home university. All students registered in **Arctic Ornithology** will receive a statement of standing which may be presented to their home university to transfer of credit to their own degree programs.

UNIVERSITY OF MANITOBA

COURSE CO-SPONSORED: Sub-Arctic Plant Ecology

Admission and Registration

This course is offered through the auspices of Inter-Universities North. Registration procedure is as follows:

1. For students presently attending one of the three Manitoba Universities:
   (a) Complete the Inter-Universities North Registration form, giving your home university and student number.
   (b) Tuition fees: $54.00 to accompany registration form, cheque made payable to **Brandon University.**

2. For students attending a university outside the province of Manitoba:
   (a) Complete the Inter-Universities North registration form as a visiting student.
   (b) A letter of permission from the registrar of the student's home university to take this course is required.
   (c) Tuition fees: $54.00 to accompany registration, cheque or money order payable to **Brandon University.**

3. Auditors: Students who wish to take the course on a non-credit basis must submit proof of eligibility to take the course, i.e., instructor's permission and recognize

that, where enrolment is limited, students taking the course for credit have priority.

(a) Complete the Inter-Universities North registration form as an auditor.
(b) Permission from instructor.
(c) Tuition fees: $27.00 to accompany registration, cheque made payable to **Brandon University**.

YORK UNIVERSITY

COURSE SPONSORED: High Arctic Tundra Field Course

Admission and Registration

Students should direct all enquiries regarding admission and registration procedures at York University to:

Dr. M. C. Lewis
Faculty of Science
York University
Downsview, Ontario
M3J 1P3
Telephone: (416) 667-3748

UNIVERSITY OF OTTAWA

COURSE CO-SPONSORED: Arctic Geomorphology

Admission and Registration

Students should direct all enquiries regarding admission and registration procedures at the University of Ottawa to:

Dr. Hugh M. French
Associate Professor
Department of Geography & Regional Planning
University of Ottawa
Ottawa, Ontario
K1N 6N5
Telephone: (613) 231-2471
(613) 820-1196

UNIVERSITY OF SASKATCHEWAN

COURSES SPONSORED: Glacial and Periglacial Geomorphology
Field Techniques in Northern Geography
Medical Anthropology

Admission and Registration

Students should direct all enquiries regarding admission and registration procedures at the University of Saskatchewan to:

Ms. Jean Watt
Registrar's Office
University of Saskatchewan
Saskatoon, Saskatchewan
R7N 0W0
Telephone: (306) 343-5171

UNIVERSITY OF TORONTO

COURSE CO-SPONSORED: Arctic Ornithology

Admission and Registration

Students should direct all enquiries regarding admission and registration procedures at the University of Toronto to:

Dr. J. Rising
Associate Professor
Department of Zoology
University of Toronto
Toronto, Ontario
M5S 1A1
Telephone: (416) 978-3482

UNIVERSITY OF WESTERN ONTARIO

COURSE CO-SPONSORED: Arctic Invertebrate Biology

Admission and Registration

Students should direct all enquiries regarding admission and registration procedures at the University of Western Ontario to:

Dr. R. Green
Professor
Department of Zoology
University of Western Ontario
London, Ontario
Telephone: (519) 679-6534

UNIVERSITY OF WINDSOR

COURSES SPONSORED:
Arctic Invertebrate Biology
People of Northern Canada
Arctic Environment

Admission and Registration

Students should direct all enquiries regarding admission and registration procedures at the University of Windsor to:

Ms. Linda Urquhart
Registrar's Office
University of Windsor
Windsor, Ontario
N9B 3P4
Telephone: (519) 253-4232, extension 203

Students registering for People of Northern Canada and Arctic Environment will pay $145.00 tuition and $450.00 accommodation to the University of Windsor. The $145.00 tuition will be considered as a non-refundable deposit.

Students registering for Arctic Invertebrate Biology will pay $72.50 tuition to the University of Windsor and $250.00 accommodation to Churchill Northern Studies Centre (see in this brochure).

UNIVERSITY OF WINNIPEG

COURSE CO-SPONSORED: Sub-Arctic Plant Ecology

This course is offered through the auspices of Inter-Universities North. Registration procedure is as follows:

1. For students presently attending one of the three Manitoba Universities:
   (a) Complete the Inter-Universities North Registration form, giving your home university and student number.
   (b) Tuition fees: $54.00 to accompany registration form, cheque made payable to **Brandon University.**

2. For students attending a university outside the province of Manitoba:
   (a) Complete the Inter-Universities North registration form as a visiting student.
   (b) A letter of permission from the registrar of the student's home university to take this course is required.
   (c) Tuition fees: $54.00 to accompany registration, cheque or money order payable to **Brandon University.**

3. Auditors: Students who wish to take the course on a non-credit basis must submit proof of eligibility to take the course, i.e., instructor's permission and recognize that, where enrolment is limited, students taking the course for credit have priority.
   (a) Complete the Inter-Universities North registration form as an auditor.
   (b) Permission from instructor.
   (c) Tuition fees: $27.00 to accompany registration, cheque made payable to **Brandon University.**

ACCOMMODATION ARRANGEMENTS AT CHURCHILL

Persons planning to take part in the Field Courses at the Centre in 1979 should give careful consideration to the following points:

1. The 'logistics' fee for accommodations, meals, and course related transportation in the Churchill area is payable to the Churchill Northern Studies Centre.

2. Payment of a $50.00 non-refundable deposit fee (part of the 'logistics' fee) must be made to the Centre by April 15, 1979 by certified cheque or money order.

3. The balance of the 'logistics' fee must be paid to the Centre at least two weeks prior to the commencement of the course; (as the number of participants in each course is limited, this procedure will provide an opportunity to fill any vacancies that arise); (should a person withdraw, the registration fee retained by the Centre will be applicable to any other course the same person wishes to take within the next 16 months).

4. The fee will include accommodations but not meals for a person arriving on a Friday if there is **not** a scheduled Winnipeg-Churchill flight on Saturday for a course starting on a Sunday.

5. DO **NOT** SEND TUITION FEES TO THE CENTRE.

6. Every effort will be made to meet course participants (at no extra charge) upon arrival in Churchill if they advise the Centre of their arrival time.

7. Complete application form in this brochure.

8. Logistics fee is as follows:

   $250.00 for the following courses:

   - Arctic Geomorphology
   - Medical Anthropology
   - Arctic Ornithology (includes return transportation from Churchill to La Perouse Bay)
   - Arctic Invertebrate Biology
   - Sub-Arctic Plant Ecology (includes return transportation from Churchill to La Perouse Bay)
   - Plant Ecology in Sub-Arctic
   - Field Course in Northern Climatology

   $425.00 for the following courses:

   - Glacial and Periglacial Geomorphology (includes return transportation from Churchill to Rankin Inlet)
   - Field Techniques in Northern Geography (includes return transportation from Churchill to Rankin Inlet)

STUDENTS ARE RESPONSIBLE FOR MAKING THEIR OWN TRAVEL ARRANGEMENTS TO AND FROM CHURCHILL.

APPLICATION FOR ACCOMMODATION AT CHURCHILL NORTHERN STUDIES CENTRE

NAME: ____

ADDRESS: ____

____

COURSE: ____

DATE OF ARRIVAL: ____

DATE OF DEPARTURE: ____

DEPOSIT FEE: $50.00 Certified cheque or money order made payable to Churchill Northern Studies Centre.

Complete this form and return before April 15, 1979 with deposit to:

Bill Erickson
Churchill Northern Studies Centre
Box 610
Churchill, Manitoba
R0B 0E0

Date Due

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AUTHOR

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